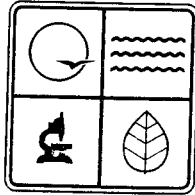


STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
MISSOURI AIR CONSERVATION COMMISSION



PERMIT BOOK

PERMIT TO CONSTRUCT

Under the authority of RSMo 643 and the Federal Clean Air Act the applicant is authorized to construct the air contaminant source(s) described below, in accordance with the laws, rules and conditions as set forth herein.

Permit Number: **08 2 0 0 6 - 0 1 1** Project Number: **2006-02-028**

Owner: **Associated Electric Cooperative, Inc.**

Owner's Address: **P.O. Box 754, Springfield, MO 65801**

Installation Name: **New Madrid Power Plant**

Installation Address: **St. Jude Road, P.O. Box 156, New Madrid, MO 63869**

Location Information: **New Madrid County, S22N, T29, R14E**

Application for Authority to Construct was made for:

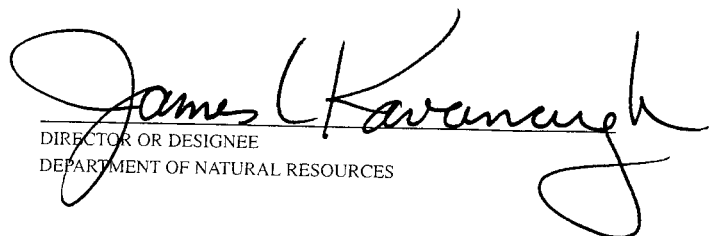
Construction of a new fly ash disposal process consisting of a paddle mixer, haul roads and a utility waste landfill. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

☐ Standard Conditions (on reverse) are applicable to this permit.

☒ Standard Conditions (on reverse) and Special Conditions (listed as attachments starting on page 2) are applicable to this permit.

AUG 29 2006

EFFECTIVE DATE


DIRECTOR OR DESIGNEE
DEPARTMENT OF NATURAL RESOURCES

STANDARD CONDITIONS:

Permission to construct may be revoked if you fail to begin construction or modification within two years from the effective date of this permit. Permittee should notify the Air Pollution Control Program if construction or modification is not started within two years after the effective date of this permit, or if construction or modification is suspended for one year or more.

You will be in violation of 10 CSR 10-6.060 if you fail to adhere to the specifications and conditions listed in your application, this permit and the project review. Specifically, all air contaminant control devices shall be operated and maintained as specified in the application, associated plans and specifications.

You must notify the Air Pollution Control Program of the anticipated date of start up of this (these) air contaminant source(s). The information must be made available not more than 60 days but at least 30 days in advance of this date. Also, you must notify the Department of Natural Resources Regional Office responsible for the area within which you are located within 15 days after the actual start up of this (these) air contaminant source(s).

A copy of this permit and permit review shall be kept at the installation address and shall be made available to Department of Natural Resources' personnel upon request.

You may appeal this permit or any of the listed Special Conditions as provided in RSMo 643.075. If you choose to appeal, the Air Pollution Control Program must receive your written declaration within 30 days of receipt of this permit.

If you choose not to appeal, this certificate, the project review, your application and associated correspondence constitutes your permit to construct. The permit allows you to construct and operate your air contaminant source(s), but in no way relieves you of your obligation to comply with all applicable provisions of the Missouri Air Conservation Law, regulations of the Missouri Department of Natural Resources and other applicable federal, state and local laws and ordinances.

The Department of Natural Resources has established the Outreach and Assistance Center to help in completing future applications or fielding complaints about the permitting process. You are invited to contact them at 1-800-361-4827 or (573) 526-6627, or in writing addressed to Outreach and Assistance Center, P.O. Box 176, Jefferson City, MO 65102-0176.

The Air Pollution Control Program invites your questions regarding this air pollution permit. Please contact the Construction Permit Unit at (573) 751-4817. If you prefer to write, please address your correspondence to the Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176, attention Construction Permit Unit.

2006-02-028

Associated Electric Cooperative, Inc.

P.O. Box 754, Springfield, MO 65801

New Madrid Power Plant

St. Jude Road, P.O. Box 156, New Madrid, MO 63869

New Madrid County, S22N, T29, R14E

Construction of a new fly ash disposal process consisting of a paddle mixer, haul roads and a utility waste landfill. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

Page No.	2
Permit No.	
Project No.	2006-02-028

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

The special conditions listed in this permit were included based on the authority granted the Missouri Air Pollution Control Program by the Missouri Air Conservation Law (specifically 643.075) and by the Missouri Rules listed in Title 10, Division 10 of the Code of State Regulations (specifically 10 CSR 10-6.060). For specific details regarding conditions, see 10 CSR 10-6.060 paragraph (12)(A)10. "Conditions required by permitting authority."

New Madrid Power Plant
New Madrid County, S22N, T29, R14E

1. Emission Limitation Particulate Matter Less Than Ten (10) Microns in Diameter (PM₁₀)
 - A. New Madrid Power Plant shall emit less than 15 tons of particulate matter less than ten (10) microns in diameter (PM₁₀) in any consecutive 12 month period from the modified fly ash/bottom ash handling system.
 - B. New Madrid Power Plant shall maintain an accurate record of PM₁₀ emitted into the atmosphere from the modified fly ash/bottom ash handling system. Attachment A or an equivalent form shall be used for this purpose. New Madrid Power Plant shall maintain all records required by this permit for not less than five (5) years and shall make them available immediately to any Missouri Department of Natural Resources' personnel upon request.
 - C. New Madrid Power Plant shall report to the Air Pollution Control Program's Enforcement Section, P.O. Box 176, Jefferson City, Missouri 65102, no later than ten (10) days after the end of the month during which the records from Special Condition Number 1.B indicate that the source exceeds the limitation of Special Condition Number 1.A.
2. Operational Limitation
 - A. New Madrid Power Plant shall control emissions from fly ash loading (EP-11) by the application of water spray.
 - B. New Madrid Power Plant shall not unload to landfill any fly ash which has not been treated using the paddle mixer to add water to the ash.
3. Haul Road Watering
New Madrid Power Plant shall water the unpaved landfill haul road (FE-05) whenever conditions exist which would cause visible fugitive emissions to enter the ambient air beyond the property boundary.

Page No.	3
Permit No.	
Project No.	2006-02-028

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

4. **Paved Haul Roads**
Maintenance and/or repair of the paved landfill haul road surface (FE-04) shall be conducted as necessary to ensure that the physical integrity of the pavement is adequate to achieve control of fugitive emissions from these roads.

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE
SECTION (5) REVIEW

Project Number: 2006-02-028
Installation ID Number: 143-0004
Permit Number:

New Madrid Power Plant
St. Jude Road, P.O. Box 156
New Madrid, MO 63869

Complete: March 2, 2006
Reviewed: August 25, 2006

Parent Company:
Associated Electric Cooperative, Inc.
P.O. Box 754
Springfield, MO 65801

New Madrid County, S22N, T29, R14E

REVIEW SUMMARY

- New Madrid Power Plant has applied for authority to construct a new fly ash disposal process consisting of a paddle mixer, haul roads and a utility waste landfill.
- Hazardous Air Pollutant (HAP) emissions are not expected from the proposed equipment.
- None of the New Source Performance Standards (NSPS) apply to the proposed equipment.
- None of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) or currently promulgated Maximum Achievable Control Technology (MACT) regulations apply to the proposed equipment.
- Haul road watering and use of water spray at fly ash unloading are being used to control the particulate matter less than ten (10) microns in diameter (PM₁₀) emissions from the equipment in this permit.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of PM₁₀ are limited to minimis levels.
- This installation is located in New Madrid County, an attainment area for all criteria air pollutants.
- This installation is on the List of Named Installations [10 CSR 10-6.020(3)(B), Table 2, Number 26 – *Fossil-fuel fired steam electric plants of more than 250 million British thermal units per hour heat input*]. Therefore, the major source threshold for all

criteria pollutants is 100 tons per year.

- Ambient air quality modeling was not performed since potential emissions of the application are below de minimis levels.
- Emissions testing is not required for the source.
- Revision to the Part 70 Operating Permit application is required for this installation within 1 year of equipment startup.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

New Madrid Power Plant includes two 615-megawatt (MW) gross (7,150 MMBTU/hr maximum heat input, based on 2001-2005 CEMs data) baseload coal-fired cyclone burner steam electric generating units – Unit 1 and Unit 2. The units utilize Powder River Basin (PRB) coal. Both units currently control particulate matter emissions using an electrostatic precipitator, while selective catalytic reduction (SCR) is utilized during ozone season (May through September) to control NO_x emissions.

The installation is a major source for both construction and operating permits. New Madrid Power Plant is considered a Part 70 source by operating permits and was issued Permit No. OP2001-003 in January 2001. The permit renewal (Project No. 2005-07-101) is currently under review. A Prevention of Significant Deterioration draft permit for the installation of over-fire air (OFA) combustion controls is also currently being reviewed (Project No. 2006-06-026).

The following construction permits have been issued to New Madrid Power Plant from the Air Pollution Control Program.

Table 1: Previously Issued Construction Permits

Permit Number	Description
1292-014	Switch from high sulfur to low sulfur coal
122002-013	Eight (8) 300 hp diesel-fired cooling water pumps
052006-001	Two (2) 345 horsepower (hp) diesel water pumps

PROJECT DESCRIPTION

New Madrid Power Plant is proposing to modify their fly ash disposal handling system through the addition of a paddle-mixer to add water to the fly ash and a utility waste landfill to dispose of the ash. The paddle-mixer will add water to the fly ash after it leaves the ash silo but prior to truck loading. Calcium oxides and pozzolans that are present in the fly ash combine and set like Portland cement when mixed with water. After mixing and truck loading, the fly ash/water product will be hauled to a new utility waste landfill for disposal. The current fly ash handling system will be maintained for

instances when the mixer cannot be operated either for maintenance or upset situations. The new landfill will also accept bottom slag from the boilers. The bottom ash will be removed from settling ponds and hauled to the landfill for permanent disposal. The emission points affected by this modification are found in the following table.

Table 2: Emission Points Affected by Current Project

Emission Point ID No.	Description
FE-04	Paved haul road to landfill (fly ash only)
FE-05	Unpaved haul road to landfill (fly ash and bottom ash)
FE-06	Landfill pile maintenance
FE-07	Landfill wind erosion
EP-11	Truck load-in of fly ash
EP-12	Truck load-out of fly ash
EP-14	Truck load-in of bottom ash
EP-15	Truck load-out of bottom ash

EMISSIONS/CONTROLS EVALUATION

Potential emissions from the modified fly ash process will consist of particulate matter less than ten (10) microns in diameter (PM₁₀). Emissions may occur from the loading of the paddle-mixer, hauling of the utility waste to the landfill, unloading at the landfill and subsequent emissions from landfill pile maintenance and wind erosion. Similar emissions will result from the handling of bottom ash once removed from the settling pond. Undocumented watering will reduce emissions from the unpaved haul roads by approximately 50%, while the paved portion of the haul road affords 90% control.

The emission factors and control efficiencies used in this analysis were obtained from the Environmental Protection Agency (EPA) document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.

- Section 13.2.2 *Unpaved Haul Roads* (12/03),
- Section 13.2.4 *Aggregate Handling and Storage Piles* (12/95), and
- Section 13.2.5 *Industrial Wind Erosion* (1/95).

Existing actual emissions were taken from the applicant's 2005 Emissions Inventory Questionnaire (EIQ) submittal. Potential emissions of the application represent the potential of the new equipment, assuming continuous operation (8760 hours per year). The applicant has requested a de minimis limitation on PM₁₀ emissions. The following table provides an emissions summary for this project.

Table 3: Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions	Existing Actual Emissions (2005 EIQ)	Potential Emissions of the Application	Project Conditioned Potential
PM ₁₀	15.0	Major	388	21.21	<15.0
SO _x	40.0	Major	13,701	N/A	N/A
NO _x	40.0	Major	31,837	N/A	N/A
VOC	40.0	N/D	230	N/A	N/A
CO	100.0	Major	1,043	N/A	N/A
HAPs	10.0/25.0	Major	143	N/A	N/A

*N/A = Not Applicable; N/D = Not Determined

PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of PM₁₀ are limited to de minimis levels.

APPLICABLE REQUIREMENTS

New Madrid Power Plant shall comply with the following applicable requirements. The Missouri Air Conservation Laws and Regulations should be consulted for specific record keeping, monitoring, and reporting requirements. Compliance with these emission standards, based on information submitted in the application, has been verified at the time this application was approved. For a complete list of applicable requirements for your installation, please consult your operating permit.

GENERAL REQUIREMENTS

- *Submission of Emission Data, Emission Fees and Process Information*, 10 CSR 10-6.110
The emission fee is the amount established by the Missouri Air Conservation Commission annually under Missouri Air Law 643.079(1). Submission of an Emissions Inventory Questionnaire (EIQ) is required April 1 for the previous year's emissions.
- *Operating Permits*, 10 CSR 10-6.065
- *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*, 10 CSR 10-6.170
- *Restriction of Emission of Visible Air Contaminants*, 10 CSR 10-6.220
- *Restriction of Emission of Odors*, 10 CSR 10-3.090

SPECIFIC REQUIREMENTS

- *Restriction of Emission of Particulate Matter From Industrial Processes*, 10 CSR 10-6.400

STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*, I recommend this permit be granted with special conditions.

Lina Klein, P.E.
Environmental Engineer

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated February 21, 2006, received March 2, 2006, designating Associated Electric Cooperative, Inc. as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.
- Southeast Regional Office Site Survey, dated March 14, 2006.

Attachment A: Monthly PM₁₀ Tracking Record

New Madrid Power Plant
New Madrid County, S22N, T29, R14E
Project Number: 2006-02-028
Installation ID Number: 143-0004
Permit Number:

This sheet covers the period from _____ to _____.
(month, year) (month, year)

Copy this sheet as needed.

[illegible]

(c) Total PM₁₀ Emissions Calculated for this Month in Tons:

(d) 12-Month PM₁₀ Emissions Total From Previous Month's Attachment A, in Tons:

(e) Monthly PM₁₀ Emissions Total (c) from Previous Year's Attachment A, In Tons:

(f) Current 12-month Total of PM₁₀ Emissions in Tons : [(c) + (d) - (e)]

- (a) Amount of fly ash or bottom ash processed = tons of fly ash processed through paddle-mixer or bottom ash taken to landfill on date (tons).
- (b) $[\text{Column F}] = \{([\text{Column B}] \times [\text{Column C}]) + ([\text{Column D}] \times [\text{Column E}])\} \times 0.0005$;
- (c) Summation of [Column F] in Tons;
- Calculate the new 12-month PM_{10} emissions total. **A 12-Month PM_{10} emissions total (e) of less than 15.0 tons indicates compliance.**

Mr. W. David Evans
Plant Manager
New Madrid Power Plant
P.O. Box 156
New Madrid, MO 63869

RE: New Source Review Permit - Project Number: 2006-02-028

Dear Mr. Evans:

Enclosed with this letter is your permit to construct. Please study it carefully. Also, note the special conditions, if any, on the accompanying pages. The document entitled, "Review of Application for Authority to Construct," is part of the permit and should be kept with this permit in your files.

Operation in accordance with these conditions, your new source review permit application and with your revised operating permit is necessary for continued compliance.

The reverse side of your permit certificate has important information concerning standard permit conditions and your rights and obligations under the laws and regulations of the State of Missouri.

If you have any questions regarding this permit, please do not hesitate to contact me at (573) 751-4817, or you may write to me at the Department of Natural Resources, Air Pollution Control Program, P.O. Box 176, Jefferson City, Missouri 65102. Thank you for your attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Kendall B. Hale
New Source Review Unit Chief

KBH:lkI

Enclosures

c: Southeast Regional Office
PAMS File: 2006-02-028

Permit Number: